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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,195	11/25/2003	Silvio Cucchi	Q78544	4224
23373	7590	04/05/2005	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037				LAM, TUAN THIEU
		ART UNIT		PAPER NUMBER
				2816

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/720,195	CUCCHI ET AL. <i>(initials)</i>
	Examiner	Art Unit
	Tuan T. Lam	2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 25 November 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-8 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 25 November 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/25/2003</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 5-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Takao et al. (USP 5,920,220). Figure 9 show a programmable stepless clock shifting circuit comprising a splitter (25), receiving a clock reference (system clock input) and generating two 90 degrees shifted clock phases (0, 90), an interpolator receiving said two 90 degrees shifted clock phases and two coefficients ( $\cos\theta$  and  $\sin\theta$ ), and supplying a programmable phase clock (output of adder 28), which has a phase shifted with respect to said clock reference that depends only on said two coefficients as called for in claim 1.

Regarding claim 5, figure 9 shows first and second multipliers (26, 26), an adder (28).

Regarding claim 6, the first and second coefficients are  $\cos\theta$  and  $\sin\theta$ , the output signal is  $\sin(wt+\theta) = \sin(wt)\cos\theta + \cos(wt)\sin\theta$ .

Regarding claims 7 and 8, the memory table and addressed according to the wanted programmable phase are seen in ROM and D/A of figure 9.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takao et al. (USP 5,920,220) in view of Sanduleanu (US 2003/0042958).

Figure 9 show a programmable stepless clock shifting circuit comprising a splitter (25), receiving a clock reference (system clock input) and generating two 90 degrees shifted clock phases (0, 90), an interpolator receiving said two 90 degrees shifted clock phases and two coefficients ( $\cos\theta$  and  $\sin\theta$ ), and supplying a programmable phase clock (output of adder 28), which has a phase shifted with respect to said clock reference that depends only on said two coefficients.

Takao et al reference does not show the detailed structures of the splitter as called for in claims 2-4. Figure 4 of Sanduleanu shows a phase splitter that is accurate with minimum manufacturing comprising a delay circuit (10), adder (6), a subtractor (7), squarers (14 and 15). Therefore, it would have been obvious to a person skilled in the art at the time the invention was made to use Sanduleanu's phase splitter in place of Takao's phase splitter for the purpose of providing an accurate 90 degrees phase shift signals with minimize production cost.

Regarding claim 4, the delay is 90 degrees and the output signals have 50% duty cycle (see figure 7b) of Sanduleanu reference.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In this regard, applicant's cited prior art has been carefully considered.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T. Lam whose telephone number is 571-272-1744. The examiner can normally be reached on Monday to Friday (7:30 am to 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TIMOTHY P. CALLAHAN can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tuan T. Lam  
Primary Examiner  
Art Unit 2816

3/31/2005